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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106809

ABSTRACT/EXTRACT--THE OVERALL YIELD OF THE ACID WAS 85PERCENT, AND THE PERCENT COMPN. OF THE ACIDS WAS SUCCINIC 28, IV 24, III 26, MALEIC 18, AND FUMARIC 3. HIGHER YIELDS WERE OBTAINED FROM RESIDUES WITH A HIGH INITIAL CONTENT OF ALDEHYDES. SAMPLES WITH LOW ALDEHYDE CONTENT GAVE POOR YIELDS (AT CONTENT 22PERCENT, THE YIELD OF TOTAL ACID WAS 21.6PERCENT.

UNCLASSIFIED

1/2 014 UNCLASSIFIED  
TITLE--BETA, ACETYLACRYLIC ACID -U-

PROCESSING DATE--27NOV70

AUTHOR--(02)-BADOVSKAYA, L.A., KULNEVICH, V.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 220,257

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACRYLIC ACID, CHEMICAL PATENT, ALKYL RADICAL, FURFURAL,  
OXIDATION, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/1582

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135223

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AA0135223  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BETA, ACETYLACRYLIC ACID IS PREPD.  
BY OXIDN. OF 5, METHYLFURFURAL WITH H SUB2 O SUB2 AT 65DEGREES.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--EFFECT OF ULTRASOUND ON FURFURAL HYDROGEN PEROXIDE WATER SYSTEMS  
-U-  
AUTHOR--(03)-BADGVSKAYA, L.A., KARYAKIN, A.V., KULNEVICH, V.G.  
COUNTRY OF INFO--USSR *B*  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 221-4  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
  
TOPIC TAGS--FURFURAL, HYDROGEN PEROXIDE, ULTRASONIC RADIATION, FUMARIC  
ACID, ACRYLIC ACID, FORMIC ACID, MALEIC ACID, SUCCINIC ACID  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--3005/0169 STEP NO--UR/0153/70/013/002/0221/0224  
  
CIRC ACCESSION NO--AT0132446  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0132446

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRODUCTS OF THE REACTION OF FURFURAL (I) WITH H SUB2 O, 30PERCENT H SUB2 O SUB2, OR 1.5-3.0PERCENT H SUB2 O SUB2 AND H SUB2 O, FOR 5 HR AT 25DEGREES, WHILE THE MIXT. IS ULTRASONICALLY IRRADIATED AT 800 KHZ, INCLUDE PYROMUCIC, FUMARIC, BETA FORMYLACRYLIC, FORMIC, MALEIC, SUCCINIC, AND MALIC ACIDS. UNDER IRRADN., THE RATE OF LOSS OF I AND OF FORMATION OF TOTAL ACIDS IS 2 OR MORE TIMES AS RAPID AS IN ITS ABSENCE. FURTHER, MALIC ACID IS NOT A SIGNIFICANT PRODUCT IN THE ABSENCE OF ULTRASONIC IRRADN., SO THAT THE EFFECT OF THE LATTER IS NOT ONLY AN ACCELERATION OF OXIDN., DUE IN PART TO THE PRODUCTION OF PEROXIDE DURING IRRADN., BUT ALSO INCLUDES INITIATION OF HYDROGENATION REACTIONS. FACILITY: KRASNODAR. POLITEKH. INST., KRASNODAR, USSR.

UNCLASSIFIED

USSR

UDC 547.752

PAPAYAN, G. L., and BADOYAN, YE. A., Institute of Fine Organic Chemistry  
imeni A. L. Mikhoyan, Academy of Sciences Armenian SSR


"Derivatives of Indole. Products of the Interaction of 3-Indolyl- and 1-  
Benzyl-3-indolylmethylidenemalononic Esters with Potassium Cyanide"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 4, 1973, pp 306-310

Abstract: 1-Benzyl-3-indolylmethylidenemalononic acid diethyl ester (I; m. 78-80°) was prepared by reacting 1-benzylindole-3-aldehyde with diethyl malonic ester. Reduction of I with  $\text{LiAlH}_4$  yielded 3-(1-benzyl-3-indolyl)-2-hydroxymethylallyl alcohol, while hydrolysis of I resulted in the formation of alpha-carboxy-beta-(1-benzyl-3-indolyl)acrylic acid (m. 216-18°). The reaction of I with KCN in EtOH did not result in the formation of an indolyl-succinic acid mononitrile, as in the case of 3-indolylmethylidenemalononic acid ester unsubstituted in the pyrrole ring (cf. A. Kalir and S. Szara, J. Med. Chem., 9, 793, 1966), but yielded the monoamide of (1-benzyl-3-indolyl) succinic acid (II; m. 140-1°), which presumably formed by hydrolysis of the corresponding mononitrile. The presence of a carboxy group in II was conversion of II into the monoethylester that formed the hydrazide of II (m. 205-6°) upon reacting with hydrazine hydrate.

1/1

- 21 -

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--RESULTS OF A SPECTRAL ANALYSIS OF THE ELECTROENCEPHALOGRAM DURING  
SLEEP AND WAKEFULNESS -U-  
AUTHOR-(03)-ONIANI, T.N., MOLNAR, P.P., BADRIDZE, I.K.   
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 57, JAN. 1970,  
P. 173-176  
DATE PUBLISHED----JAN70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ELECTROENCEPHALOGRAPHY, SLEEP, ELECTROPHYSIOLOGY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0210 STEP NO--UR/0251/70/057/000/0173/0176  
CIRC ACCESSION NO--AP0119206  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0119206

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION, BY SPECTRAL ANALYSIS AND INTEGRATION OF ELECTROENCEPHALOGRAMS OF CATS WITH PERMANENTLY IMPLANTED ELECTRODES, OBTAINED DURING VARIOUS PHASES OF THE SLEEP WAKEFULNESS CYCLE. GRAPHS SHOWING THE ELECTRICAL ACTIVITY OF THE AUDITORY AND VISUAL PORTIONS OF THE NEOCORTEX AND THE DORSAL HIPPOCAMPUS OF A SLEEPING CAT AND THE CHANGES IN THIS ACTIVITY DUE TO ELECTRIC STIMULATION OF THE RETICULAR FORMATION OF THE MIDBRAIN INDICATE THAT SLOW HIGH AMPLITUDE OSCILLATIONS PREVAIL IN ALL THESE STRUCTURES PRIOR TO STIMULATION. DELTA, THETA, AND ALPHA RHYTHMS DOMINATE IN THE AUDITORY REGION OF THE NEOCORTEX DURING SLEEP. THRESHOLD EXCITATION OF THE RETICULAR FORMATION LEADS TO SUBSTANTIAL CHANGES IN THE ELECTRICAL ACTIVITY OF THE NEOCORTEX, WHICH MANIFEST THEMSELVES IN A PRONOUNCED INHIBITION OF THE DELTA, THETA, AND ALPHA RHYTHMS. THESE RHYTHMS ARE ALSO INHIBITED IN THE HIPPOCAMPUS, BUT TO A LESSER DEGREE.  
FACILITY: AKADEMIIA NAUK GRUZINSKOI SSR, INSTITUT FIZIOLOGII, TIFLIS GEORGIAN SSR.

UNCLASSIFIED



USSR

B UDC 591.1 + 612-019

ONIANI, T. N. (Corresponding Member, Academy of Sciences Georgian SSR), MOL'NAR, P. P., and BADRIDZE, I. K., Institute of Physiology, Academy of Sciences, Georgian SSR

"Results of Spectral Analysis of Electroencephalogram During Sleep and Wakefulness"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 57, No 1, 1970, pp 173-176

Abstract: Different cortical rhythms recorded with the use of chronically implanted electrodes in several phases of the sleep waking cycle were investigated by the method of spectral analysis and integration. During spontaneous as well as evoked arousal (by means of alimentary conditioned signal or by electrical stimulation of the reticular formation), high voltage slow waves (delta, theta, and alpha) were inhibited in different neocortical territories, and for a short period in the hippocampus as well. In place of the generally reported increase of the low-voltage fast activity components ( 1 and 2), a decrease in these rhythms was found.

1/1

- 115 -

USSR

UDC: 681.337

SMIRNOV, B. S., BADU, Ye. I.

"A Device for Automatic Scale Changing in Analog Computers"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 46, Dec 73, Author's Certificate No 407327, Division G, filed 21 Feb 72, published 21 Nov 73, p 163

Translation: This Author's Certificate introduces a device for automatic scale changing in analog computers based on Author's Certificate No 228342. As a distinguishing feature of the patent, operating accuracy is improved by adding a unit for a variable subrange expansion coefficient containing a product unit whose inputs are connected to a source of the first and second derivative of the variable to be scaled. The output of the product unit is connected to the inputs of zone discriminators. Connected to the output of each of the zone discriminators is an actuating element such as a relay whose normally open contacts are connected in the corresponding circuit of the module for setting and resetting initial conditions.

1/1

USSR

UDC 632.95

BADULIN, A. V., Chief of the Division of Plant Protection, Volga Scientific Research Institute of Irrigation Agriculture; BURDALAYEVA, T. S., All-Union Scientific Research Institute of Reclamative Afforestation; POPOV, N. A., Chief of the Laboratory of Chemico-Biological Control, Volgograd Disinfection Station; and PONOMARENKO, V. F.

"Studies on Applications of Dibrom"

Moscow, Zashchita Rasteniy, Vol 17, No 6, 1972, pp 32-33

Abstract: Organophosphorus compounds, although highly toxic with respect to their action as insecticides and acaricides, are relatively safe as far as contamination of the environment and accumulation in food products are concerned. The applications of dibrom, which decomposes rapidly and hence does not present any serious danger to the health of human beings, were studied for these reasons. Dibrom is available in the form of a 50% emulsion containing OP-10 as the emulsifier. To test the effectiveness of dibrom against household insects (the common cockroach, bedbugs, and various species of flies including the house, bluebottle, greenbottle, blow, and flesh flies), the insects were placed in contact with a plywood sheet treated with a dibrom emulsion in the amount of 100 g/m<sup>2</sup>. After a 15 min contact with the plywood sheet, the still living insects were removed and observed.

1/2

USSR

BADULIN, A. V., et al., Zashchita Rasteniy, Vol 17, No 6, 1972, pp 32-33

Dibrom in a concentration of 0.5-1% killed cockroaches in 3-72 hrs, producing an irreversible paralysis in 1 hr. In a concentration of 0.25-0.5% dibrom killed bedbugs in 3-24 hrs and produced paralysis in 10-15 min. In a concentration of 0.5-0.1% / 0.5-1% / it killed all flies in 3-5 min. The surface treated with dibrom remained effective against cockroaches and bedbugs for a period up to 24 hrs and against flies for a period up to 3-4 days. Bait poisoned with 0.25-0.5% dibrom was effective against cockroaches. On being sprayed on plants infested with the insect pests, an 0.15% emulsion of dibrom killed all pea and rose aphids and an 0.1% emulsion all larvae of the fig cicada and of the rose sawfly within 4-5 hrs. An irreversible paralysis was produced within the first few minutes of contact of these insects with dibrom. Larvae of the elm leaf beetle were resistant to dibrom. Dibrom in a concentration of 0.2% was effective against larvae of the fox-colored sawfly. The dibrom emulsions did not burn the plants and preserved their toxicity for 35 days (the time during which observations were carried out) on being kept at 20-23° after preparation.

2/2

- 24 -

USSR

UDC 614.73

ALFEROV, M. V., PADYL, V. I., and BATOVA, Z. G.

"The Radiation Significance of Internal Irradiation Caused by Uranium of Plutonium Fission"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 112-113

Abstract: The possibility of transferring research workers, handling uranium or plutonium isotopes to operations entailing exposure to neutron fields was examined. The issue is the additional internal irradiation created by fragments formed during the fission of the uranium or plutonium isotopes. Calculations show that from the standpoint of radiation safety, no additional restrictions need be placed on such personnel if the exposure to neutron radiation is at the maximum permissible level. If the neutron flux reaches values above this level, the conditions of radiation safety will be determined by the injurious effect of the neutron flux itself, the internal dose of alpha irradiation, and, if the neutron fields are sufficiently large, by the dose of fission fragments.

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USSR

UDC 616-099-612.014.46

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TITOVA, N. N. and BADIUGIN, I. S., Chair of Labor Hygiene and Occupational Diseases ~~Kazan~~ Medical Institute of the Order to Labor Red Banner imeni S. V. Kuroshov

"Acute Intoxication with Chlorophos (Dipterex)"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 1, Jan/Feb 70, pp 37-40

Abstract: Chlorophos is a toxic agent whether inhaled, taken orally, or absorbed through skin. Only initial symptoms are different, depending on the route of entry. Most of the symptoms are suggestive of cholinergic pathology. Chlorophos may circulate in blood for up to five days, and is excreted from the body for 10-15 days, so purging of the gastrointestinal tract, dialysis, blood transfusions, and forced diuresis should be maintained for several days. Since in basic medium chlorophos converts to toxic dimethyl-2,2-dichlorovinyl phosphate, acidic oxidative agents should be used as a rule. The following agents are recommended for treatment of chlorophos poisoning: IV injections of dipyroxime solution and purified cholinesterase, atropine injections every 20-30 min to the point of overatropinization.  
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USSR

SYCHEVA, S. P., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 1, 1970, pp 240-243

In the Hill reaction, MNP is entirely negative in non-cyclic phosphorylation, weak in cyclic phosphorylation and somewhat active in pseudocyclic phosphorylation. Generally the Hill reaction is more sensitive in the presence of phosphate acceptors, which necessitates further study.

2/2

Steels

USSR

UDC 539.67

TAVADZE, F. N., ZOIDZE, N. A., BADZOSHVILI, V. I., METREVELI, V. SH., and GARIBASHVILI, V. I.

"The Effect of Boron on the Internal Friction and Mechanical Properties of CONGVR Steel"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 132-134

Abstract: It is shown that the addition of boron to CONGVR steel leads to an increase in strength, and reinforces the effect of heat treatment on "heredity." In samples containing boron, a preliminary deformation at room temperature increases the strength and yield stress after the  $\alpha$ - $\gamma$ - $\alpha$  transformations.

It is assumed that an increase in mechanical properties is related to the effect of boron on the formation of steel substructure. Certain recommendations are given on the practical use of boron for strengthening the effect of heat treatment on the "heredity" of alloyed steels. 2 figures.

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USSR

UDC 547.792.3:541.127.1

PEVZNER, M. S., SAMARENKO, V. YA., and BAGAL, L. I., Leningrad Technological Institute imeni Lensovet, Leningrad

"Heterocyclic Nitro Compounds. XV. Kinetics of the Reaction of 1-Methyl-3-nitro-5-halo-1,2,4-triazoles with Hydroxyl Anions"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 848-851

Abstract: The kinetics of the reaction of 1-methyl-3-nitro-5-chloro- and 1-methyl-3-nitro-5-bromo-1,2,4-triazole with hydroxyl ions were studied. The reactivity of the substituents increased from  $\text{NO}_2$  to Cl and Br, both of which reacted at approximately the same rate. The ratio of the rate constant of substitution of the halogen atom to that of the  $\text{NO}_2$  group was equal to 30:1.

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1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SYNTHESIS AND STRUCTURE OF SOME DIAZONIUM SALTS OF THE  
1,2,4, TRIAZOLE SERIES -U-  
AUTHOR--(05)-FROLOV, A.N., PEVZNER, M.S., SHOKHUR, I.N., GALKOVSKAYA, A.G.,  
BAGAL, L.I.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (5), 705-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC-SYNTHESIS, MOLECULAR STRUCTURE, DIAZONIUM SALT,  
ORGANIC AZOLE COMPOUND, PERCHLORATE, NITRATE, CARBOXYL RADICAL,  
ELECTRONEGATIVITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1028 STEP NO--UR/0409/70/000/005/0705/0709  
CIRC ACCESSION NO--AP0134740  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134740

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ME

3, DIAZO, 1, 2, 4, TRIAZOLE, 5, CARBOXYLATE,

3, DIAZONIUM, 5, PHENYL, 1, 2, 4, TRIAZOLE FLUOBORATE, PERCHLORATE, AND  
NITRATE, 3, DIAZONIUM, 5, (P, NITROPHENYL), 1, 2, 4, TRIAZOLE, AND THE M, NITRO

ANALOG WERE PREP'D. THE H ON THE N ATOM IN

3, DIAZONIUM, 5, CARBOXY, 1, 2, 4, TRIAZOLE WAS MORE ACIDIC THAN THE ONE IN THE  
CARBOXYL GROUP. THE STRUCTURE OF A CRYST. DIAZONIUM SALT OF THE

TRIAZOLE SERIES DEPENDED ON THE ELECTRONEGATIVITY OF THE SUBSTITUENT IN  
POSITION 5 OF THE RING. FACILITY: LENINGRAD. TEKHNOL. INST. IM.

LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

Acc. No. **APC100367**

Abstracting Service:  
CHEMICAL ABST.

Ref. Code:

**4R0409**

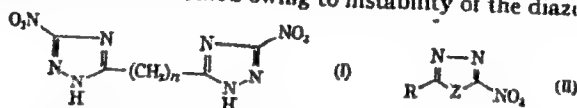
111383h Heterocyclic nitro compounds. I. Synthesis of nitro derivatives of 1,2,4-triazole, 1,3,4-thiadiazole, tetrazole, 1,3,4-oxadiazole and pyrazole by the noncatalytic substitution of a diazo group for a nitro group. Bagal, L. I.; Pevzner, M. S.; Frolov, A. N.; Sheludyakova, N. I. Leningrad. Tekhnol. Inst. im. Lensoyeta, Leningrad, USSR. *Khim. Geterotsikl. Soedin.* 1970, (2), 259-64 (Russ). Treating 1.68 g 3-amino-1,2,4-triazole in AcOH with 1.6 g NaNO<sub>2</sub> in 7 ml concd. H<sub>2</sub>SO<sub>4</sub> at -5 to 0° 5 min., followed by diln., <0°, and addn. of the soln. to 200 ml 10% NaNO<sub>2</sub> at 45-50°, and the mixt. heated 1 hr at 45° gave 57% 3-nitro-1,2,4-triazole, m. 210°. Alternatively, the amino-triazole in 10% H<sub>2</sub>SO<sub>4</sub> was added to 10% NaNO<sub>2</sub> at 45°. Similarly were prepd. the following 5-substituted derivs. (5-substituent shown): Me, m. 194°; Et, m. 121°; Pr, m. 92°; Ph, m. 222-3°; *p*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>, m. 274-5°; *m*-isomer, m. 189°; CO<sub>2</sub>H, m. 102°; CO<sub>2</sub>Me, m. 134°; also the following 3-nitro-2-methyl-5-(R-substituted)-1,2,4-triazoles: H, m. 83°; CO<sub>2</sub>H, m. 166°; and 3-nitro-4-methyl-1,2,4-triazole, m. 100°. Similar reaction with 3,5-diamino-1,2,4-triazole and NaNO<sub>2</sub> in aq. H<sub>2</sub>SO<sub>4</sub> gave 80% 3,5-dinitro-1,2,4-triazole, m. 135°, which was very hygroscopic. The following were prepd. similarly: 1-methyl-5-nitro-tetrazole, m. 55-6°; and the 2-Me analog, m. 86-7°. A suspension of 2.1 g. 2-amino-5-methyl-1,3,4-oxadiazole in 20% NaNO<sub>2</sub> at -5° treated over 3 hr with 100 ml 7% H<sub>2</sub>SO<sub>4</sub> at <0°,

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gave 25% 2-nitro-5-methyl-1,3,4-oxadiazole, m. 75°. For this prepn. it was essential to shorten the contact with acids, as 1,3,4-oxadiazoles are unstable in acids. The following I were reported (*n* shown): 0, m. 256-7°; 1, m. 280-2°; and 2, m. 260-1°. Although 2-aminoimidazole and 2-aminopyridine failed to yield nitro derivs. by this method owing to instability of the diazonium



forms, the results confirmed the previously suggested mechanism for the introduction of the NO<sub>2</sub> group. (B., *et al.*, 1969). The following II were similarly prepd. (Z and R shown): S, H, m. 82°; S, Me, m. 62°; S, Ph, m. 141°; S, *o*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>, m. 131°; S, *p*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>, m. 179°; O, Me, m. 75°; and CH<sub>3</sub>, H, m. 175°. The yields were 25-76%.

G. M. Kosolapoff

19841790

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--HETEROCYCLIC NITRO COMPOUNDS. II. ALKYLATION OF NITRO DERIVATIVES  
OF 1,2,4-TRIAZOLE -G-

AUTHOR--BAGAL, L.L., PEVZNER, M.S., SHELDYAKOVA, N.I., KERUSOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SCEDIN. 1970, (2), 265-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, ALKYLATION, ORGANIC AZOLE  
COMPOUND, ORGANIC SULFUR COMPOUND, SULFATE, METHOXY COMPOUND, AROMATIC  
NITRO COMPOUND, THIN LAYER CHROMATOGRAPHY, CHROMATOGRAPHIC SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1793

STEP NO--UR/0409/70/000/002/0265/0268

CIRC ACCESSION NO--AP0100369

UNCLASSIFIED

ACC. NO:

AP0100369

ADstracting Service:  
CHEMICAL ABST.

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Ref. Code:

4R0409

111384j Heterocyclic nitro compounds. II. Alkylation of nitro derivatives of 1,2,4-triazole. Bagal, L. I.; Pevzner, M. S.; Sheludyakova, N. I.; Korusov, V. M. (Leningrad. Tekhnol. Inst. im. Lensovet, Leningrad, USSR). *Khim. Geterotsikl. Soedin.* 1970, (2), 265-8 (Russ). Methylation of 3-nitro-1,2,4-triazole (I) and its analogs with Me<sub>2</sub>SO<sub>4</sub> in alkali occurs at the 1-position, while CH<sub>2</sub>N<sub>2</sub> gave mixed products with Me in the 1- and 2-positions. I (2 g) in Me<sub>2</sub>CO treated with 6 ml 10% NaOH and 2.2 g Me<sub>2</sub>SO<sub>4</sub> and the mixt. kept 8 hr gave 66% 1-Me deriv. (II) of I, m. 63-4°. Similarly prepd. was the 1,5-di-Me deriv. (III) of I, 55%, m. 89-90°, while the 5-carbomethoxy deriv. of I gave its 1-Me deriv., 51%, m. 120-1°. Treating, in dioxane, the appropriate I analog with 50% excess CH<sub>2</sub>N<sub>2</sub> in Et<sub>2</sub>O gave: from I, 76% II and 24% 1-methyl-5-nitro-1,2,4-triazole; from the 5-Me deriv. of I, 64% III and 36% 1,3-dimethyl-5-nitro-1,2,4-triazole. No N<sup>6</sup>-substitution was found. Adding 6.5 g 1,3-dimethyl-5-amino-1,2,4-triazole-H<sub>2</sub>SO<sub>4</sub> in 5% H<sub>2</sub>SO<sub>4</sub> at 0° to 30 g NaNO<sub>2</sub> in H<sub>2</sub>O and keeping the mixt. 0.5 hr gave 52% 1,3-dimethyl-5-nitro-1,2,4-triazole, m. 55-6°; similarly was prepd. 3-nitro-4,5-dimethyl-1,2,4-triazole, m. 66-7°. CH<sub>2</sub>N<sub>2</sub> and 1-

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methyl-3-carboxy-5-nitro-1,2,4-triazole gave 69% Me ester, m. 84°. The 1-methyl-5-carbomethoxy deriv. of I heated with 15% H<sub>2</sub>SO<sub>4</sub> 12 hr gave 67% II. 3,5-Dinitro-1,2,4-triazole converted to its Na salt and this treated with Me<sub>2</sub>SO<sub>4</sub> in Me<sub>2</sub>CO gave 64% 1-Me deriv., m. 96-7°, also formed exclusively from the Ag salt and MeI in the dark in MeCN, or from the dinitrotriazole and CH<sub>3</sub>N<sub>2</sub> in Et<sub>2</sub>O, or finally from 1-methyl-3,5-diamino-1,2,4-triazole-H<sub>2</sub>SO<sub>4</sub> heated with aq. NaNO<sub>2</sub> and Cu(NO<sub>3</sub>)<sub>2</sub> 2 hr at 50-60°. The mixed triazoles were readily sepd. by thin layer chromatog. on Al<sub>2</sub>O<sub>3</sub>.

G. M. Kosolapoff

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CHEMICAL ABST

rel. code:

4R0409

111380e Heterocyclic nitro compounds. III. Interaction of nitro derivatives of 1,2,4-triazole with aliphatic amines. Bagal, L. I.; Pevzner, M. S.; Samarenko, V. Ya. (Leningrad. Tekhnol. Inst. im. Lensovet, Leningrad, USSR). *Khim. Geterotsikl. Soedin.* 1970. (2), 269-74 (Russ). 1-Methyl-3,5-dinitro-1,2,4-triazole (I) reacts with aliphatic amines by replacement of the NO<sub>2</sub> group in the 5-position by the amine residue. I (4 g) heated with 100 ml 25% NH<sub>4</sub>OH in an autoclave 4 hr at 70-80° gave 5-amino-1-methyl-3-nitro-1,2,4-triazole (II), m. 254-6°; N-Ac deriv. m. 172-3°. II treated with 10% H<sub>2</sub>SO<sub>4</sub> at 0°, followed by aq. NaNO<sub>2</sub> gave 1-methyl-3-nitro-5-nitrosamino-1,2,4-triazole, m. 78°. To 70 ml concd. H<sub>2</sub>SO<sub>4</sub> was added at 0° 3 g NaNO<sub>2</sub> followed by 29 g NaH<sub>2</sub>PO<sub>4</sub> in 50 ml 30% H<sub>2</sub>SO<sub>4</sub>, and 3 g II in 200 ml AcOH, and the mixt. held 1 day at 0° to yield 22% 1-methyl-3-nitro-1,2,4-triazole, m. 62-3°. I in dioxane heated with 20% aq. MeNH<sub>2</sub> 1 hr at 80° gave 1-methyl-3-nitro-5-methylamino-1,2,4-triazole (III), m. 207-8°; similarly were prepd. the following analogs (5-amino groups shown): CH<sub>3</sub>:CHNH, m. 68-9°; Me<sub>2</sub>N, m. 109°; Et<sub>2</sub>N, m. 47.5-8°; aziridino, m. 114-15°; and piperidino, m. 120-1.5°. Hydrogenation of III in EtOH over Pd-C gave 1-methyl-5-methylamino-3-amino-1,2,4-triazole (IV).

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m. 170°; similarly was prepd. the 5-dimethylamino analog, m. 136.5°. IV and NaH<sub>2</sub>PO<sub>4</sub> treated with aq. HCl and NaNO<sub>2</sub> overnight gave 1-methyl-5-methylamino-1,2,4-triazole, isolated as the picrate, m. 211-12°, also formed from 1-methyl-5-nitro-1,2,4-triazole and aq. MeNH<sub>2</sub> in aq. dioxane in 10 hr at 75°; similarly was prepd. 1-methyl-5-dimethylamino-1,2,4-triazole (V) picrate, m. 152-3°. Heating Me<sub>2</sub>NCSNH<sub>2</sub> in EtOH with MeI 2 hr, gave 89% Me<sub>2</sub>NC(NH<sub>2</sub>):SMe.I, m. 97-8°, which heated 16 hr in EtOH with MeNHNH<sub>2</sub> gave 1,1,3-trimethyl-3-amino-guanidine-HI, which with 88% HCO<sub>2</sub>H heated 40 hr at 110° gave 79% V, isolated as the picrate. Holding 1-methyl-3-nitro-5-aziridino-1,2,4-triazole with concd. HCl in dioxane 1 hr. gave 1-methyl-3-nitro-5-(2-chloroethylamino)-1,2,4-triazole, m. 130°. Heating I with Et<sub>3</sub>N in aq. dioxane 4 hr gave 1-methyl-3-nitro-1,2,4-triazol-5-one, decompd. 229°, also obtained from the aq. filtrate in the prepn. of II after treatment with 5% H<sub>2</sub>SO<sub>4</sub>. The purification of the products was best done on a thin layer of Al<sub>2</sub>O<sub>3</sub>.

G. M. Kosolapoff

42

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Acc. Nr.

AP0053772

Abstracting Service:  
CHEMICAL ABST.

5/12/80  
P

Ref. Code

UR0366

110924y Anions of dinitromethyl compounds. XV. Synthesis of aryldinitromethanes by the nitration of arylaldoximes with nitrogen pentoxide. Kolesetskaya, G. I.; Tselinskii, I. V.; Bagal, I. I. (Leningrad. Tekhnol. Inst. im. Lensovet, Leningrad, USSR). *Zh. Org. Khim.* 1970, 6(2), 334-40 (Russ).

The reaction of  $RCH:NOH$  (I) [R is 2- $ClC_6H_4$ ; 3- $ClC_6H_4$ ; 4- $ClC_6H_4$ ; 2- $BrC_6H_4$ ; 3- $BrC_6H_4$ ; 4- $BrC_6H_4$ ; 2- $MeC_6H_4$ ; 3- $MeC_6H_4$ ; 4- $MeC_6H_4$ ; 2- $MeOC_6H_4$ ; 3- $MeOC_6H_4$ ; 4- $MeOC_6H_4$ ; 3- $NCC_6H_4$ ; 4- $NCC_6H_4$ ; 2- $FC_6H_4$ ; 4- $FC_6H_4$ ; 2- $O_2NC_6H_4$ ; 3- $O_2NC_6H_4$ ; 4- $O_2NC_6H_4$ ; 5,2- $Cl(O_2N)_2C_6H_3$ ; 2,5- $Cl(O_2N)_2C_6H_3$ ; 5,2- $Br(O_2N)_2C_6H_3$ ; 4,3- $Br(O_2N)_2C_6H_3$ ; 3,4- $Br(MeOC_6H_4)_2$ ; 3,4- $O_2N(MeO)_2C_6H_2$ ; 2,5- $MeO(O_2N)_2C_6H_2$ ; 2,4- $Cl_2C_6H_3$ ; 2,4- $Me_2C_6H_3$ ; 2,4,5- $Me_3(O_2N)_2C_6H_2$ ; 2,4,3,5- $Me_4(O_2N)_2C_6H_2$ ; 2,4,5-( $O_2N$ ) $_2$ ( $MeO$ ) $C_6H_2$ ; 2,3,5- $MeO(O_2N)_2C_6H_2$ ; 3,5,4-( $O_2N$ ) $_2$ ( $MeO$ ) $C_6H_2$  with  $N_2O_5$ ] gave  $RCH(NO_2)_2$  (II) and  $RCHO$ . The yields of II depend on the position of the substituents: *o*-substituted I gave 20-30% II, other I give 45-60% II. Nitration of I (R = 4- $Me_2NC_6H_4$ ) gave 4,3,5- $Me_2N(O_2N)_2C_6H_2CH(NO_2)_2$ . II give salts, such as  $RCH(NO_2)_2X$  (X is Cl or Br). Also I react with  $CH_3CHAc$  to give  $RC(NO_2)_2CH_2CH_2Ac$ . CPJR I

REEL/FRAME  
19830835

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ISOMERS OF 1,3,5,TRINITRO,1,3,5,TRIMETHYLOLCYCLOHEXANE -U-  
AUTHOR--(03)-GEORGIYEVSKAYA, G.D., BAGAL, L.I., BOLDYREV, M.D.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. DPG. KHIM. 1970, 6(4), 731-2 *B*  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ISOMER, NITROBENZENE, SODIUM COMPOUND, BORON HYDRIDE, COMPLEX  
COMPOUND, CYCLOHEXANE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1951 STEP NO--UR/0366/70/006/004/0731/0732  
CIRC ACCESSION NO--AP0125540  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REDN. OF 1,3,5, TRINITROBENZENE WITH NABH SUB4 A COMPLEX IS FORMED (L. I. BAGAL, ET AL., 1969) WHICH REACTS WITH HCHO GIVING 2 ISOMERS OF THE TITLE COMPD. M. 180-190DEGREES (DECOMPN.) AND 190-200DEGREES (DECOMPN.). IT IS THOUGHT THAT 1 OF THE ISOMERS HAS TRIEQUATORIAL OR TRIAXIAL CONFORMATION AND THE OTHER DIEQUATORIAL AXIAL OR DIAAXIAL EQUATORIAL CONFORMATION. FACILITY: LENINGRAD. TEKHNDL. INST. IM. LENSOVETS, LENINGRAD, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--HYDROLYSIS OF DINITROACETONITRILE IN SULFURIC ACID -U-

AUTHOR--(C4)-MINTS, YE.S., TESLER, R.S., GCLUD, YE.L., BAGAL, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 698-701

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROLYSIS, ORGANIC NITRILE COMPOUND, SULFURIC ACID, CHEMICAL  
REACTION KINETICS, ACTIVATION ENERGY, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/2177

STEP NO--UR/0366/70/006/004/0698/0701

CIRC ACCESSION NO--AP0125757

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125757

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF (O SUB2 N) SUB2  
CHCN (I) HYDROLYSIS WITH 85.3-99.0PERCENT H SUB2 SO SUB4 WERE STUDIED IN  
THE TEMP. RANGE 5.8-25DEGREES. THE REACTION IS BIMOL. AND ITS  
ACTIVATION ENERGY DECREASED WITH THE INCREASE OF H SUB2 SO SUB4 CONCN.  
A MECHANISM IS PROPOSED. FACILITY: LENINGRAD. TEKHNOL. INST.  
IM. LENSUVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--HETEROCYCLIC NITRO COMPOUNDS. V. 1, METHYL, 3, NITRO, 5, ALKOXY AND  
PHENOL, 1, 2, 4, TRIAZOLES -U-  
AUTHOR--(04)-BAGAL, L.I., PEVZNER, M.S., SAMARENKO, V.YA., YEGOROV, A.P.  
COUNTRY OF INFO--USSR *B*  
SOURCE--KHIM. GETEROTSKI KL. SOEDIN. 1970, (5), 702-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, ORGANIC NITRO COMPOUND,  
ORGANIC AZOLE COMPOUND, KETONE, ORGANIC SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1027 STEP NO--UR/0409/70/000/005/0702/0704  
CIRC ACCESSION NO--AP0134739  
UNCLASSIFIED



2/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70  
 CIRC ACCESSION NO--AP0134739  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ET SUB3 N (1.6 ML) WAS ADDED TO 2  
 G 1,METHYL,3,5,DINITRO,1,2,4,TRIAZOLE (I) IN 50 ML MECH AT 50DEGREES AND  
 THE MIXT. HEATED 2 HR AT 60-70DEGREES TO GIVE 71PERCENT  
 1,METHYL,3,NITRO,5,ALKOXY,1,2,4,TRIAZOLE (II) (ALKYL EQUALS ME) (III),  
 M. 146DEGREES (ETOH). SIMILARLY, II (ALKYL EQUALS ET AND PR), M.  
 75DEGREES (ETOH), AND 38DEGREES (PETROLEUM ETHER), RESP., WERE PREPD. I  
 (2 G) IN 15 ML DIOXANE AND 3 ML H SUB2 O AND 1.09 G PHOH IN 4 ML DIOXANE  
 WAS HEATED 3 HR AT 65-70DEGREES TO GIVE 51PERCENT II (ALKYL EQUALS PH),  
 M. 124.5DEGREES (CCL SUB4 PETROLEUM ETHER). SIMILARLY, 72PERCENT II  
 (ALKYL EQUALS M AND P, J SUB2 NC SUB6 H SUB4), M. 154.5DEGREES AND  
 173DEGREES (BOTH FROM C SUB2 H SUB4 CL SUB2 ET SUB2 O), RESP., WERE  
 PREPD. III TREATED WITH HBR IN ACOH GAVE 25PERCENT  
 1,METHYL,3,BROMO,1,2,4,TRIAZOL,5,ONE, M. 225DEGREES (C SUB2 H SUB4 CL  
 SUB2). FACILITY: Leningrad. TEKHNOL. INST. IM. LENSOVETA,  
 Leningrad, USSR.

UNCLASSIFIED

USSR

UDC 621.317.4:621.318.12

ARTEMOVA, M. A., BAGALEY, O. Yu., GROBOVITSKIY, M. I., ZINGERMAN, V. I.

"Installation for Determination of Static Magnetic Characteristics of Specimens of Magnetically Hard Materials"

Izmeritel'naya Tekhnika, No 11, 1971, pp 65-67.

ABSTRACT: A description is presented of a new installation, designed for certification testing of specimens of magnetically hard materials. It allows determination of demagnetization curves of specimens consisting of rectangular parallelepipeds with cross sections of 0.5 to 9 cm<sup>2</sup>, from 15 to 100 mm in length. The coercive force of the specimens tested should be not over 200 ka/m (for 15 mm specimens) or 80 ka/m (for 100 mm specimens). The design and construction of the new installation eliminate the preliminary calibration operations, the system itself being suitable as a standard source for certification of standard specimens. The installation uses a measurement method allowing the advantages of pulse magnetization and induction measurement of magnetic induction to be combined. A photograph is presented of the device, plus a description of its primary characteristics.

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- 151 -

*BAGAMADOVA, A.M.*

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V-13. EPITAXIAL FILMS OF ZINC OXIDE ON SAPPHIRE AND OTHER SUBSTRATES

Article by S. A. Zhel'tsov, M. A. Babadurov, A. M. Bagamadova, Moscow: Novosibirsk, III Sibirskogo Proletarskogo Universiteta, Seriya Poluprovodnikovaya Khimika, 1972, p. 64

In the report results were presented which were obtained when studying the initial growth stages, the microtopography and the defect structure of monocrystalline films of zinc oxide on mica, sapphire, germanium and gallium arsenide. The films were grown by the method of chemical transport using the following reaction:



The measurements of the electrical conductivity and the Hall effect and their temperature dependence permitted us to obtain information about the concentration of excess zinc atoms in the ZnO film and its dependence on the film orientation and growth rate.

In sufficiently thick layers ( $> 10$  microns), the Hall mobility of the electrons is  $160-180$  cm<sup>2</sup>/volt-sec, and the concentration is  $2 \cdot 10^{16}$  cm<sup>-3</sup> (for 300°K).

1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THE HEAT CAPACITY OF SOLID CF SUB4 -U-  
AUTHOR--BAGATSKIY, M.I., MANZHELIY, V.G., POPOV, V.A.  
COUNTRY OF INFO--USSR *B*  
SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 1, PP 65-72  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--HEAT CAPACITY, CRYSTAL STRUCTURE, MOLECULAR STRUCTURE,  
FLUORINATED ORGANIC COMPOUND, METHANE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0635 STEP NO--GE/0030/70/0377/001/0065/0072  
CIRC ACCESSION NO--AP0107232  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT CAPACITY OF SOLID TETRAFLUOROMETHANE HAS BEEN MEASURED IN THE TEMPERATURE RANGE 2 TO 20DEGREESK. THE ANALYSIS OF THE RESULTS OF THIS PAPER AND LITERATURE DATA ON THE HEAT CAPACITY ALLOW TO MAKE CONCLUSIONS ABOUT THE CHARACTER OF THE HEAT MOTION OF THE MOLECULES IN CRYSTALLINE CF SUB4. AN "EXTRA" HEAT CAPACITY OF CF SUB4 NEAR THE PHASE TRANSFORMATION TEMPERATURE TAULAMBDA EQUALS 76.09DEGREESK IS DUE TO ORIENTATIONAL DISORDERING. THE TEMPERATURE DEPENDENCE OF THE "EXTRA" HEAT CAPACITY DELTAC SUBOR IS WELL DESCRIBED BY THE LOGARITHMIC FUNCTION DELTAC SUBOR SIMILAR TO LG (L MINUS TAU) TAULAMBDA).

UNCLASSIFIED

USSR

UDC 539.192/.194+535.33/.34.01

BOCHVAR, D. A., BAGATUR'YANTS, A. A., BORISOV, YE. V.

"Study of  $\pi$ -Electron Structure of Substituted Sidnons and Sidnonimins by the Huckel Method With Parameters Obtained From the Pariser-Parr-Popl Method"

Izucheniye  $\pi$ -elektronnogo strovaniya zameshchennykh sidnonov i sidnoniminov po metodu Khyukkelya s parametrami, poluchennymi iz metoda Parizera-Parra-Popla (cf. English above), Editorial Collegium of Zhurnal fizicheskoy khimii, Academy of Sciences USSR, Moscow, 1971, 17 pp, ill., 14 references, Deposition No 2523-71 (from RZh-Fizika, No 5, May 71, Abstract No 5D113)

Translation: Twenty-three molecules of substituted sidnons and sidnonimins were calculated by the simple Huckels method. Two sets of Coulomb and resonance integrals were used that were calculated from the corresponding matrix elements of the Pariser-Parr-Popl method. Molecular diagrams and energy characteristics of the molecules calculated are given. The properties of sidnons and sidnonimins of both substitutes and conductors of electron effects are discussed, and the effects of redistribution of electron density in the heteroring under the effect of substitutes R, R', R'' are discussed. It is shown that the effect of substitutes has a stronger

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USSR

BOCHVAR, D. A., et al, Izucheniye  $\pi$ -elektronnogo stroeniya zameshchennykh sidonov i sidnoniminov po metodu Khyukheliya s parametrami, poluchennymi iz metoda Parizera-Parra-Popla

effect on the charges of  $N_2$ - and  $C_4$ - atoms. It was found that sidons and sidonimins, in accordance with the data from analysis of the physicochemical properties and reaction capacities of these molecules, are weak conductors of  $\pi$ -electron effects from the third and fourth positions of the ring into the fifth and sixth positions.

2/2

- 75 -

USSR

UDC 669.71.053.4.094

MAL'TS, N. S., BERNSHTEYN, V. A., MEDVEDEV, V. V., BAGAYEV, A. S.

"Thermotechnical Studies on an Experimental Device for High-Temperature Leaching of Bauxites"

Tr. Vses. n.-i. i proyekt. in-ta alumin., magn. i elektrokn. prom-sti  
(Works of the All-Union Scientific Research And Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 109-119 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G141)

Translation: Results are presented from studies of the kinetics of incrustation of the heat-exchange surface and the heat-exchange conditions during the process of heating of bauxite pulp in the experimental device for high-temperature leaching of bauxites. The nature of incrustation of the heat-exchange surface in a broad temperature range of heating of bauxite pulp and also the effect of individual factors on this process are determined. There are 4 illustrations and 1 table.

1/1

- 4 -



BAGAYEV A. V.

Prilutskiy, A. S., Krasovskiy, R. R.	Reception of a Fluctuating Optical Signal .....	120
Vaynsel', V. I.	Optimization of an Optical Heterodyning System .....	132
Shebekunov, K. R.	Analysis of the Synchronization of an Optical Communication Channel with Time Division Multiplexing of the PCM Trunks .....	159
Litvinova, T. P., Lobkova, L. N.	Frequency-Space Correlation Function of the Amplitudes of Waves Propagated in a Locally Isotropic Turbulent Atmosphere .....	160
Lobkova, L. N., Chistyakov, A. B., Lobkov, M. M.	Effect of Amplitude and Phase Field Distribution at a Laser Output on the Spatial Coherence of the Laser Emission .....	174
Lobkova, L. N., Chistyakov, A. B., Lobkov, M. M.	Fast and Slow Fluctuations of the Angles of Arrival of Laser Emission .....	181
Kislitsin, N. V., Podubnyy, V. V.	Statistical Description of Hermitian and Laguerre Photon Fluxes .....	189
Kislitsin, N. V., Podubnyy, V. V., Pulmyn, V. P.	Quantum Mechanical Description of Some Procedures of Nonparametric Statistics .....	194
Podubnyy, V. V., Tivozhenko, B. Ye.	Potential Accuracy of Measuring the Angular Position of Photon Source .....	198
Yuliseyev, P. G., Ismailov, I., Fedorov, Yu. F., Kazimovskiy, L. G.	Application of Semiconductor Lasers for Multichannel Optical Communications .....	202
Sitishnevskiy, M. L., Vapniko, S. G., Bogoyev, A. V.	Relation of the Distribution Functions of a Quasimonochromatic Signal and Its Amplitudes ..	203
Deryuzhin, I. A., Kurnov, V. N.	Optimization of Optical-Band Quantum Counting Systems .....	210
Adrianova, L. I., Brodovitch, N. A., Volonokovskiy, V. B., Danilov, B. S., Hesterova, Z. V., Petrova, A. V., Popov, Yu. V., Rozanov, N. N.	Laser Emission Modulation .....	221

TECHNICAL TRANSLATION

REF ID: A63532

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION  
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,  
SEPTEMBER 1968

RUSSIAN TITLE: PROBLEMY PEREDACHI INFORMATSII LASERNYI IZLUCHENIYEM

AUTHOR: I. A. DERVIZIN, ET AL.

SUBJECT: KIEV ORDER OF LENIN STATE UNIVERSITY  
IUREN T.G. SCHEVCHENKO

Translated for FSTC by ACSE

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B. Methods of Combinatory Analysis in Other Fields  
of Science. Graph Theory

USSR

BAGAYEV, G. N.

"Random Graphs with Degree of Connectedness 2"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 22,  
Novosibirsk, 1973, pp 3-14 (Translated from Referativnyy Zhurnal Kiber-  
netika, No 10, 1973, Abstract No 10V549)

Translation: The number of all graphs connected without parallel lines  
and without loops within marked points and  $n + 1$  lines is calculated,  
and the probability distribution of the number of points belonging to  
cycles in graph  $S_n$ , selected at random from the set of graphs studied,  
the distribution of distances between cycles in graph  $S_n$  and the regular  
threshold functions and threshold functions of the distribution for the  
appearance of randomly placed points in the cycles of graph  $S_n$  are cal-  
culated.

Author's view

1/1

USSR

BAGAYEV, G. N.

"One Distribution in a Random Tree"

Diskretn. analiz [Discrete Analysis -- Collection of Works], No 21, Novosibirsk, 1972, pp 3-9 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V354 by V. Leont'yev)

Translation: The problem of distribution of random quantity  $\eta(l)$ , equal to the number of points in a random-point tree from which  $l$  lines are removed in a random manner and which contains fixed point  $v$ , is studied.

Theorem 1. The probability that random quantity  $\eta(l)=k$  is

$$P\{\eta(l)=k\} = \frac{l}{(n-l)n^{n-l-1}} \left(\frac{n-l}{k}\right) k^k (n-k)^{n-k-l-1} \quad (k=1, \dots, n-l).$$

1/2

USSR

BAGAYEV, G. N., Diskretn. analiz., No 21, Novosibirsk, 1972, pp 3-9

Local and integral theorems of convergence of the distribution of the random quantity  $\eta(l)$  with various values of parameter  $l$  as  $n \rightarrow \infty$  are also proven.

2/2

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USSR

UDC 519.281

BAGAYEV, G. N.

"Asymptotic Effectiveness of Linear Estimates of Mean Square Deviation"

Upravlyaemye Sistemy. [Controlled Systems -- Collection of Works], No 7, Novosibirsk, 1970, pp 51-58, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V223 by V. Shemenev).

Translation: Suppose  $\xi_1 \leq \xi_2 \leq \dots \leq \xi_n$  is a variation series of samples from distribution  $F(x-a/\sigma)$ , where  $F(y)$  is a known function,  $a$  and  $\sigma$  are unknown;

$\theta_n = \sum_{i=1}^n h_i^n \xi_i$  is a linear estimate of standard deviation  $\sigma$ . Coefficients  $h_i^n$

minimizing the dispersion of estimate  $\theta_n$  are found. The asymptotic effectiveness of the estimate produced is proven.

USSR

UDC: 621.372.412

LOBANOV, Ye. M., CHUBAROV, L. B., YAKOVLEV, V. N., NEDOSTUPOV, V. N.,  
BAGAYEV, N. M.

"Oscillation Frequency Temperature Dependence of Crystal Plates"

[Tr.] Tashkent. in-ta inzh. zh.-d. transp. ([Works] of the Tashkent Institute of Railway Transportation Engineers), 1970, vyp. 66, pp 146-148 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D345)

Translation: An investigation is made into the effect which temperature has on the frequency of oscillations of a quartz AT-section plate. An expression is derived which can be used to evaluate the effect of the temperature coefficients of the constants of elasticity of quartz as well as the effect of the angle of plate cut-off on the temperature coefficient of frequency. V. V.

1/1

USSR

UDC 621.373.535 (206.3)

BAGAYEV, S. N., VASILENKO, L. S., MATYUGIN, YU. A., KLEMENT'YEV, V. N.,  
TROSHIN, B. I., and CHEBOTAYEV, V. P.

"Some Results of a Study of the Generation Frequency Stability of Gas Lasers  
on the 0.63, 1.5, 3.39, and 9.6 Micron Wavelengths"

Leningrad, Optika i Spektroskopiya, Vol 32, No 4, Apr 72, pp 802-803

Abstract: The article gives a brief description of the principal results of the authors' study of the frequency stabilization of gas lasers on the 0.63, 1.5, 3.39, and 9.6-micron wavelengths. Various frequency stabilization methods were used: viz., a stabilization method based on the Lamb dip, stabilization methods according to the peak in the output radiation power (a laser with an internal absorption cell) and with an external gas absorption cell in a variable magnetic field. The main purpose of this work was to show that high frequency stability values can be attained in various lasers by various methods. The experimental setup and the measurement procedures used by the authors, as well as the research results will be described in separate

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• USSR

BAGAYEV, S. N., et al., Optika i Spektroskopiya, Vol 32, No 4, Apr 72, pp 802-808

articles. The main emphasis was placed on the physical principles of the stabilization methods used and the results attained. All the principal results are shown in a table which, besides generation-frequency-stability measurement data, also gives parameters which characterize the physicotchnical properties of an optical frequency discriminator.

2/2

- 73 -

USSR

UDC 631.8+632.954:633.52.1

PAGAYEV, V. B. and ABUYEVA, A. A., Timirizyayev Agricultural Academy

"Effects of Various Levels of Nitrogen, Phosphorus and Potassium Nutrition on the Sensitivity of Common Flax to the 2M-4Kh Herbicide"

Moscow, Khimiya v sel'skom khozyaystve, No 11, 1971, pp 51-53

Abstract: Research conducted in recent years indicates that the sensitivity of plants to herbicides is largely a function of nutritional factors. This investigation concerns the effect of various doses of nitrogen, phosphorus and potassium on the sensitivity of common flax to the herbicide 2M-4Kh. The dose levels were categorized as half-doses, ordinary doses, double doses and for potassium -- also tripple doses. The nitrogen fertilizer was applied in the form of ammonium nitrate, the phosphorus fertilizer -- as monosubstituted calcium phosphate, and potassium -- as potassium sulfate. The study shows that with an increase of the nitrogen fertilizer dose above the ordinary norm, the sensitivity of the flax to the 2M-4Kh herbicide increases with subsequent adverse effects on the crop. In experiments with phosphorus nutrition, the lowest sensitivity to 2M-4Kh was shown with a double fertilizer dose. The flax sensitivity to the herbicide was found to decrease with an increase in the phosphorus nutrition level. Experiments involving

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USSR

BAGAYEV, V. B. et al, Khimiya v sel'skom khozyaystve, No 11, 1971, pp 51-53

potassium nutrition show that the least sensitive to 2M-4M were plants cultivated with a double dose of potassium fertilizer. Further increase of potassium nutrition (as well as a decrease in dose) adversely affected the flax crop.

2/2

- 73 -

USSR

UDC 616.988(RS)-092.9-097

DREZYIN, R. S., VYSHNEVETSKAYA, L. O., BAGDAMYAN, YE. YE., YANKEVICH, O. D.,  
TARASOVA, L. B., and KLENOVA, A. V., Institute of Virology Virusologii, No 6,  
Nov/Dec 71, pp 670-676

Abstract: Cotton rats aged  $1\frac{1}{2}$ -2 weeks were experimentally infected with the Long strain of RS virus through intranasal inoculation, and the progress of the disease was investigated with three methods, yielding corresponding results. The virus and the specific antigen (anti-RS FITC-globulin of rabbits) were detected 24 hours after inoculation. The intensity of fluorescence, the percentage of cells containing the antigen, and the virus titer in the epithelium of the nose, trachea, bronchi, and alveoli reached a maximum in 3 to 5 days, at which time maximum pathomorphological changes were also observed in the epithelium of the trachea, bronchi, and bronchioles. The intensity of the infectious process declined on the 7th day, and neither the specific antigen, nor the virus, nor the pathomorphological changes in the epithelium of the respiratory pathways were found on the 14th day.

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- 41 ..

USSR .

UDC 621.315.592

GORLIN, G. E., PARITSKIY, L. G., RYVKIN, S. H., BAGDANAVICHUS, A. A.

"Possibility of Using the Electrophotographic Semiconductor-Dielectric System in Long Wave Semiconductor Photography"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 427-428

Abstract: Photography in the long wave range is possible on the basis of the principle of controllable sensitivity [L. G. Paritskiy, et al., Zh. nauch. i prikl. fotograf. i kinematogr., No 15, 185, 1970; L. G. Paritskiy, et al., FTP, No 4, 764, 1970]. The implementation of this principle requires a device in which the photographic sensitivity is switched on electrically or otherwise only at the time of exposure to avoid fogging of the photographic film by the equilibrium background radiation. These requirements are satisfied by the electrophotographic semiconductor-dielectric system [S. G. Grenishin, Elektrofotograficheskiy protsess, Nauka Press, Moscow, 1970; R. Shaffert, Elektrofotografiya, Mir Press, Moscow, 1968] investigated in this article. A layer of seminsulating GaAs alloyed with zinc 1,000 microns thick with a specific resistance of  $10^8$  ohm-cms was used as the photoconductor. The dielectric layer was a polyethylene film 10 microns thick with a conducting coating. The light source had a light flux power to  $3 \cdot 10^{-2}$  watts/cm<sup>2</sup>. It was assumed that the charge

1/2

USSR

GORLIN, G. B., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 427-428

transfer could occur through a gap filled with liquid nitrogen. The semiconducting layer and the dielectric layer were clamped between conducting electrodes and the device was charged with liquid nitrogen to complete cooling. Then simultaneously with illumination, a voltage pulse lasting 80 milliseconds was applied to the conducting electrodes. Even with a voltage pulse of 8 kilovolts, the charge transfer did not take place until experiments were performed in which the system cooled by submerging completely in liquid nitrogen was partially extracted to the level at which the semiconductor contact with the dielectric was above the nitrogen surface. Charge transfer took place after removal of the nitrogen in the gap for an 80 millisecond, 3 kilovolt pulse.

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140

1/2 026 UNCLASSIFIED PROCESSING DATE--02JCT70  
TITLE--FERRITE MICROWAVE FILTERS WITH TRAVELING WAVE TUBE -J-  
AUTHOR--(02)-BAGDASARY, G.S., MALYAKIN, A.K.  
COUNTRY OF INFO--USSR *B*  
SOURCE--MOSCOW, RADIOTEKHNIKA I ELECTRONIKA, VOL 15, NO 2, 1970, PP  
405-408  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--TRAVELING WAVE TUBE, MICROWAVE FILTER, FERRITE, DESIGN  
STANDARD  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REL/FRAME--1991/1330 STEP NO--UR/0109/70/015/002/0405/0406  
CIRC ACCESSION NO--AP0110907  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0111907

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. PROBLEMS RELATED TO THE DESIGN AND FEATURES OF THE OPTIMAL STRUCTURE OF FERRITE FILTERS ARE CONSIDERED. CERTAIN CONSTRUCTION VARIANTS OF FERRITE WAVEGUIDE FREQUENCY SELECTIVE SYSTEMS FOR MICROWAVE RECEIVERS ARE PRESENTED SCHEMATICALLY. THE BEHAVIORAL CHARACTERISTICS OF PARASITIC RESONANCES (INHOMOGENEOUS PRECESSION MODES), WHICH DETERMINE THE FERRITE FILTERS IN A WIDE FREQUENCY RANGE ARE INVESTIGATED. IT IS SHOWN THAT THE SUPPRESSION OF INHOMOGENEOUS PRECESSION MODES OCCURS IN SUCH SYSTEMS. THE NUMBER OF FILTERS WHICH ENSURE A GIVEN SUPPRESSION COEFFICIENT  $\alpha$  IS DETERMINED. EXPRESSIONS ARE DERIVED FOR THE TRANSMISSION AND SUPPRESSION COEFFICIENTS. THE DEPENDENCE OF THE SUPPRESSION COEFFICIENT  $\alpha$  ON THE GENERALIZED DETUNING OF ARBITRARY MODES OF OSCILLATIONS, WITH RESPECT TO ITS FERROMAGNETIC RESONANCE FREQUENCY, IS PRESENTED IN A GRAPH. ABSTRACT: THESE CHARACTERISTICS MAKE IT POSSIBLE TO DETERMINE THE SUPPRESSION COEFFICIENT  $\alpha$  OR THE NUMBER OF FERRITE RESONATORS WITH SUFFICIENTLY HIGH ACCURACY. THE POSSIBILITY OF AN INDEPENDENT ORIENTATION OF EACH FERRITE RESONATOR IS AN IMPORTANT PROPERTY OF FERRITE FILTER SYSTEMS, WHICH MAKES IT POSSIBLE TO OBTAIN THERMALLY STABLE HIGHLY DISCRIMINATING FILTERS IN A WIDE RANGE OF TEMPERATURES. THE RESULTS OBTAINED MAKE IT POSSIBLE TO PRODUCE FERRITE FILTERS WITH GIVEN DISCRIMINATING AND BAND CHARACTERISTICS.

UNCLASSIFIED



USSR

UDC 621.372.57

B  
BAGDANOV, G. B., MALYAKIN, A. K.

"Ferrite Microwave Filters With Traveling Wave Tube"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 2, 1970,  
pp 405-408

Abstract: Problems related to the design and features of the optimal structure of ferrite filters are considered. Certain construction variants of ferrite waveguide frequency-selective systems for microwave receivers are presented schematically. The behavioral characteristics of parasitic resonances (inhomogeneous precession modes), which determine the ferrite filters in a wide frequency range are investigated. It is shown that the suppression of inhomogeneous precession modes occurs in such systems. The number of filters which ensure a given suppression coefficient  $A$  is determined. Expressions are derived for the transmission and suppression coefficients. The dependence of the suppression coefficient  $A$  on the generalized detuning of arbitrary modes of oscillations, with respect to its ferromagnetic resonance frequency, is presented in a graph.

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USSR

BAGDANOV, G. B., et al, Radiotekhnika i Elektronika, Vol 15,  
No 2, 1970, pp 405-408

Abstract: These characteristics make it possible to determine the suppression coefficient  $A$  or the number of ferrite resonators with sufficiently high accuracy. The possibility of an independent orientation of each ferrite resonator is an important property of ferrite filter systems, which makes it possible to obtain thermally-stable highly discriminating filters in a wide range of temperatures. The results obtained make it possible to produce ferrite filters with given discriminating and band characteristics. Orig. art. has: 3 figures and 8 formulas.

2/2

USSR

UDC 548.0+535.35

BAGDASAROV, CH. S., KAMINSKIY, A. A., KEVORKOV, A. M., PRCKHCROV, A. M.  
(Academician) SARKISOV, S. E., and TEVOSYAN, T. A., Institute of Crystallography,  
imeni A. Z. Shubnikov and Physical Institute imeni P. N. Lebedev, USSR Academy  
of Sciences, Moscow

"Laser Properties of a  $\text{Y}_2\text{SiO}_5\text{-Nd}^{3+}$  Crystal in Radiation at  $4\text{F}_{3/2} \rightarrow 4\text{I}_{11/2}$  and  
 $4\text{F}_{3/2} \rightarrow 4\text{I}_{13/2}$  Transitions"

Moscow, Doklady Akademii Nauk SSSR, Vol 212, No 6, 1973, pp 1326-1327

Abstract: The crystals were formed in a 1:1 oxide system of  $\text{Y}_2\text{O}_3\text{-SiO}_2$ . They  
are biaxial and positive with  $N_g = 1.825$  and  $N_p = 1.807$ . Their melting point  
is  $1980 \pm 30^\circ\text{C}$  and the optical range of transparency extends from about 0.18 to  
about  $4.9 \mu$  at a sample thickness of about 1mm. Pulse-stimulated radiation was  
recorded at  $300^\circ\text{K}$  and  $77^\circ\text{K}$  in the spectral regions of  $1.075 \mu$  for the first  
transition and  $1.36 \mu$  for the second. Attempts to obtain  $4\text{F}_{3/2} \rightarrow 4\text{I}_{9/2}$  transi-  
tions at  $77^\circ\text{K}$  were unsuccessful. Analysis of the spectra of absorption and

1/2

USSR

BAGDASAROV, CH. S., et al., Doklady Akademii Nauk SSSR, Vol 212, No 6, 1973, pp 1326-1327

luminescence showed that the  $\text{Nd}^{3+}$  ions enter into the composition of a minimum of two types of activated sensors, which result, with the measurements made, cast serious doubt on the results reported by Arsenev, Raiskaya, and Sviridovaya in Phys. Stat. Sol., No 13, 1972.

2/2

- 2/ -

Radiation Chemistry

USSR

UDC 544.6:546.65

SHEMELEVA, G. G., BAGDASAROV, K. N., and STEPANENKO, Yu. V.,  
Rostov-NA-Donu State University

"New Extraction-Photometric Method for Determining Uranium in Minerals"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 15, No 10, 1972, pp 1468-1470

Abstract: Uranium may be selectively extracted from a solution of uranium nitrate using tributyl phosphate (TBP) and  $\text{CCl}_4$ , resulting in a 90% yield. The U(VI) is reacted with p-nitrophenylfluorone (NPF) and the solution analyzed photometrically. Cadmium, zinc, molybdenum (VI), vanadium (V), iron (III), lanthanum, thorium, and zirconium -- in concentrations 1600, 500, 200, 200, 100, 50, 50, and 25 times that of U(VI) respectively -- did not interfere with the photometric determination of the U-NPF complex. This technique was applied to analyzing for U in carnotite; relative error was  $\pm 2\%$  for amounts of U ranging from 150 to 450 micrograms.

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1/2 019 UNCLASSIFIED PROCESSING DATE--300CT70  
TITLE--RADIOISOTOPE METHODS OF INVESTIGATION IN THE DIAGNOSIS OF  
NEPHROGENIC HYPERTENSION -U-  
AUTHOR--BAGDASAROV, M.B.  
COUNTRY OF INFO--USSR  
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 31-36  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--HYPERTENSION, KIDNEY FUNCTION, RADIOACTIVE ISOTOPE, DIAGNOSTIC  
DRUG  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1042 STEP NO--UR/0497/70/048/003/0031/0036  
CIRC ACCESSION NO--AP0126680  
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--300170  
CIRC ACCESSION NC--AP0126680  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. ON THE BASIS OF EXAMINATION OF 192 PATIENTS WITH ARTERIAL HYPERTENSION, IN 68 OF WHOM IT WAS ASSOCIATED WITH DIFFERENT DISEASES OF THE KIDNEYS, THE AUTHOR ARRIVED AT THE CONCLUSION ON THE OBVIOUS VALUE OF ISOTOPE RENOGRAPHY AND SCANNING IN THE RECOGNITION OF THE GENESIS OF THE DISEASE. THESE TECHNIQUES ENABLE TO ESTABLISH THE SIDE AND DEGREE OF AFFECTION AND THE STATE OF THE CONTRALETERAL KIDNEY. THE FINDINGS OF THE STATE OF THE KIDNEY FUNCTION OBTAINED BY MEANS OF RADIOISOTOPE METHODS IN THE PRELIMINARY STAGE OF EXAMINATION MAY PROVE TO BE VERY VALUABLE IN PLANNING THE EXAMINATION AND CHOICE OF THE THERAPEUTIC TACTICS. FACILITY: GLAVNYY KLINICHESKIY VOYENNY GOSPITAL' IM. N. N. BURDENKO.

UNCLASSIFIED

Radiation Chemistry

USSR

UDC 544.6:546.65

SHCHEMELEVA, G. G., BAGDASAROV, R. N., and STEPANENKO, YU. V., Chair of Analytical Chemistry, Rostov-on-Don State University, Rostov-on-Don

"Spectrophotometric Study of the Interaction of Uranium (VI) with 9-p-Nitrophenyl-2,3,7-trihydroxy-6-fluorone"

Ivanovo, Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Vol 16, No 2, 1973, pp 198-201

Abstract: A method for the determination of  $UO_2^{++}$  by the reaction with "p-nitrophenylfluorene" (9-p-nitrophenyl-2,3,7-trihydroxy-6-fluorone; I) was developed. To a solution containing 5-50 gamma  $UO_2$ , 5 ml of an acetate buffer solution (pH 6.0-6.2) and 3 ml of a solution of I ( $2 \times 10^{-3}$  g-mole/l.) in EtOH were added, whereupon the solution was diluted to 25 ml. A raspberry-red color developed, which was due to the formation of a compound of I with  $UO_2^{++}$  in a 2:1 ratio. Two H atoms (one per molecule in two molecules of I) were substituted by one  $UO_2$  group; this indicated that I reacted with  $UO_2^{++}$  as an orthohydroxyquinone. The colored solution was subjected to spectrophotometry at 530 nm. The dissociation constant of the  $UO_2$ -I compound, determined by the  $1/2$



USSR

SHCHEMELEVA, G. G., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Vol 16, No 2, 1973, pp 198-210

method of dilution, was  $7.9 \times 10^{-15}$ . The molar coefficient of extinction of the compound, determined according to Komar', was  $2.2 \times 10^{-4}$ . Beer's law applied at U concentrations of 0.2-10 gamma/ml. The relative error of spectrophotometric determinations of U in pure  $UO_2^{++}$  salts was  $\leq 2.5\%$ .

2/2

- 72 -

USSR

UDC: 624.131.43+539.21.084-492.3

ARARKTSYAN, G. M., BAGDASARYAN, A. B.

"Concerning Investigation of the Motion of a Mudslide"

Sb. nauch. tr. Yerevan. politekhn. in-ta (Collected Scientific Works of Yerevan Polytechnical Institute), 1970, 25, pp 52-57 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V498)

Translation: The paper discusses the particulars of a mudflow (mountain flows of water saturated with solid matter). In contrast to the action of conventional water flow against a barrier, where there is no time for the development of a shock wave, in the case of a mudslide the time of shock wave development is shorter, which is due to the slow speed of the relief waves and to the colloidal properties of mud. The authors discuss use of a viscoplastic model (Bingham medium) for describing a mudslide. Specifically, simple expressions are given for the velocity of mudflow as a function of slope, yield stress and the coefficient of viscosity. These expressions can be used for experimental verification of the applicability of this model. Bibliography of 11 titles. R. I. Nigmatulin.

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- 83 -

BAGDASAR'YAN, G. A.

JPRS 55320  
1 Mar 72  
UDC: 616.9-078

SANITARY MICROBIOLOGICAL RESEARCH DEALING WITH PREVENTION OF BACTERIAL AND VIRAL INFECTIONS

[Article by G. A. Bagdasaryan, G. A. Bagdasaryan, V. V. Vladimirov, Yu. G. Talayeva, Ye. A. Kovalyukhina, L. I. Kovalyukhina, G. A. Dalkiyeva (Moscow); Moscow, Vsesoyuznyi Nauchno-Issledovatskiy Tsentr, Russian, No 1, 1972, pp 71-78]

One of the decisive factors in nonspecific prophylaxis of bacterial and viral infections is intensification of health improving hygienic measures. Prompt development of first and foremost sanitary measures is determined largely by the results of systematic sanitary microbiological investigations of environmental objects (water, air in buildings, soil).

Sanitary microbiology, which has been studying the quality of drinking water and sanitary state of reservoirs, soil, and air, jointly with hygienists, have developed sensitive methods and accumulated extensive experimental and factual data, which permitted recommendation of norms that are used in routine sanitary practice to regulate the quality of water.

From the standpoint of prophylaxis of intestinal infections, improvement of routine methods of testing the quality of water and sanitary condition of reservoirs with respect to bacterial contamination is becoming very important. One of the directions of work in this area is evaluation of the existing microbiological approaches to isolation of the E. coli group of bacteria as indicators of the degree of fecal pollution of water. For this purpose, the sanitary significance of bacteria included in the E. coli group and their isolation, on the basis of fermentation of glucose at 43°, according to A. A. Alimov et al. (Standard, 52-4-80, for several years in different climatic zones of the USSR) in reservoirs of different types and with various sources of pollution. It was established that the glucosyltransferase test was not found to be a differentiation between bacteria that are pathogenic from the sanitary point of view and E. coli that have lost this property and water bacteria. This was confirmed not only for the reservoirs of the South but also in the temperate zone. The quality of water in reservoirs, with respect to bacterial contamination, is best characterized by lactose-fermenting variants of Enterobacteriaceae, studied on lactose media at a temperature of 37° and demonstrated best by the method of membrane filters (L. Ye.

USSR

UDC 519.217

BAGDASARYAN, G. A.

"A Multiline Queueing System with Requests of Several Types"

Bol'shiye Sistemy. Massovoye Obsluzh. Nadezhnost' [Large Systems. Queueing. Reliability -- Collection of Works], Moscow, Nauka Press, 1970, pp 137-142  
(Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V48 by V. Ivanitskiy).

Translation: A fully accessible, 1-line ( $I > 1$ ) queueing system is studied, the input of which receives  $m$  independent simple flows, the  $i$ th flow having intensity  $\lambda_i$ ,  $\Lambda = \sum_i \lambda_i$ . The servicing time is exponentially distributed with parameter  $\mu$ . No

type of request has priority over others. Suppose  $\xi$  and  $X_i$  are the number of all requests and the number of requests of type  $i$  in the system respectively,  $P\{\xi=n, X_1=r_1, \dots, X_m=r_m\} = F(n, r_1, \dots, r_m)$ . A formula is found for the generating function  $\Phi(s_0, s_1, \dots, s_m) = \sum F(n, r_1, \dots, r_m) s_0^n s_1^{r_1} \dots s_m^{r_m}$  from which, in particular, expressions are produced for  $M\xi$  and  $MX_i$ . Similar results are also produced for the distribution of the composition of the line.

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USSR

UDC 576.858.23.07+616.988.23-034.48

BAGDASAR'YAN, G. A. and LOVTSEVICH, Ye. L.

Indikatsiya i Inaktivatsiya Kishechnykh Virusov v Ob'yektakh Vneshney Sredy  
(Detection and Inactivation of Enteroviruses in Environmental Objects), Moscow,  
1972, 128 pp

Translation:

Contents

Introduction...	3
CHAPTER 1. Sanitary-Virological Examination of Water...	5
Role of water in the spread of enteroviral infections. G. A. Bagdasar'yan...	5
Detection of enteroviruses and their spread in water of different degrees of pollution. G. A. Bagdasar'yan...	12
Survivability of enteroviruses in water of different degrees of pollution. G. A. Bagdasar'yan...	25
Effectiveness of purification of sewage and sludge of entero- viruses. G. A. Bagdasar'yan...	39
Effectiveness of methods of purifying drinking water of entero- viruses. Ye. L. Lovtsevich...	47
Effectiveness of methods of inactivating enteroviruses in drinking water. Ye. L. Lovtsevich...	54

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USSR

BAGDASAR'YAN, G. A. and LOVTSEVICH, Ye. L., Indikatsiya i Inaktivatsiya  
Kishechnykh Virusov v Ob'yektakh Vneshney Sredy, 1972, 128 pp

Sanitary-indicator microorganisms in sanitary-virological examination of water. Ye. L. Lovtsevich...	75
CHAPTER 2. Sanitary-Virological Examination of Soil. G. A. Bagdasar'yan...	86
CHAPTER 3. Role of Food Products in the Spread of Enteroviral Infections. G. A. Bagdasar'yan...	96
CHAPTER 4. Detection and Inactivation of Enteroviruses in Everyday Objects. Ye. L. Lovtsevich...	103
CHAPTER 5. Modeling in the Study of Methods of Detection and Inactivation of Enteroviruses in Environmental Objects...	113
Appendix...	117
Bibliography...	121

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- 10 -

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THE CONNECTION BETWEEN THE FORCE OF IMPACT AND THE CHARACTER OF  
CHANGES IN CUTTING FORCES DURING PLANING -U-  
AUTHOR--KASYAN, M.V., ARUTYUNYAN, G.A., BAGDASARYAN, G.B. *B*

COUNTRY OF INFO--USSR

SOURCE--YEREVAN, IZVESTIYA AKADEMII NAUK ARMYANSKOY SSSR, SERIYA  
TEKHNICHESKIKH NAUK, VOL 23, NO 1, 1970, PP 3-10  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CUTTING TOOL, BIBLIOGRAPHY, METAL CUTTING, METAL MACHINING,  
PLANING MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/1671

STEP NO--UR/0173/70/023/001/0003/0010

CIRC ACCESSION NO--AP0104893

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104893

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE PHYSICAL NATURE OF THE CHANGE IN COMPONENTS OF CUTTING FORCE DURING PLANING IN CONNECTION WITH THE FORCE OF IMPACT. RATED AND EXPERIMENTAL VALUES OF THE IMPACT FORCE UPON INCISION OF THE CUTTING TOOL ONTO MACHINED METAL ARE OBTAINED. IT WAS ESTABLISHED THAT, BEGINNING FROM DEFINITE VALUES OF THE SPEED OF CUTTING, BECAUSE OF THE IMPACT OF CUTTING TOOL UPON MACHINED METAL, NOTICEABLE TRACES OF WEAR RESEMBLING WEAR CHAMFERING ARE FORMED ON THE BACK SURFACE OF THE CUTTING TOOL. AS A RESULT, FORCES ACTING ON THE BACK SURFACE OF THE CUTTING TOOL INCREASE AND THEREBY AUGMENT COMPONENTS OF THE CUTTING FORCE. TWO TABLES.

UNCLASSIFIED



1/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--DATA ON ANALYSES OF STANDARD GECHRONOLOGICAL SAMPLES -U-

AUTHOR--(05)--AFANASYEV, G.D., BRANDT, S.B., BAGDASARYAN, G.P., GURKHGV,  
I.M., GUKASYAN, R.KH.  
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAU. NAUK SSSR, SER. GEOL. 1970, (4), 104-11

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GECHRONOLOGY, POTASSIUM ARGON DATING, LEAD ISOTOPE, ABSOLUTE  
AGE, EARTH CRUST AGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0411

STEP NO--UR/0011/70/000/004/0104/0111

CIRC ACCESSION NO--AP0137502

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0137502

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ARE GIVEN ON ANAL. OF GECHRONOL. STDs. OF THE SOVIET UNION FOR K-AR AND RB-SR METHODS AND SEVERAL MINERALS OF PRECAMBRIAN PEGMATITE USES AS STD. FOR THE Pb ISOTOPIC METHOD OF ABS. AGE DETN. THEY SHOWED A GOOD AGREEMENT WITH CONTROL ANAL. MADE IN VARIOUS LABS. OF THE U.S.S.R. AND BY THE LAB. AT BERN, SWITZERLAND. THE RESULTS OF STUDY OF GECHRONOL. STD. BY VARIOUS METHODS INDICATE THAT THE VALUES OF CONSTS. OF PRIME40 K AND PRIME87 RB DECAY APPROVED BY 13 SESSIONS OF THE COMMISSION ON ABS. AGE DETN. (FOR K:  $\lambda_{K40}$  EQUALS 0.0557 TIMES 10 PRIME NEGATIVE 9 PER YR AND  $\lambda_{K40}$  EQUALS 0.472 TIMES 10 PRIME NEGATIVE 9 PER YR; FOR RB  $\lambda_{K87}$  EQUALS 1.39 TIMES 10 PRIME NEGATIVE 11 PER YR), SHOULD BE USED IN PRACTICAL WORK UNTIL MORE CERTAIN VALUES FOR THESE CONSTS. ARE DETD. EVERY WORK ON THE ABS. AGE DETN. SHOULD BE ACCOMPANIED BY PRIMARY ANAL. DATA ON THE CONTENT OF PARENTAL AND DERIVATED DECOMP. PRODUCTS AND BY THE VALUES OF CONSTS. USED DURING AGE CALC. FACILITY: INST. GEOL. KUD. MESTORUZH., PETROGR., MINER. GEOKHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

AMBARTSUMYAN, S.A., BAGDASARYAN, G.YE., BELUBEKYAN, M.V. (Yerevan)

"Concerning the Three-Dimensional Problem of Magnetoelastic Oscillations of a Plate"

Moscow, Prikladnaya Matematika i Mekhanika, No 2, March-April 1971, pp 216-228.

Abstract: The problem of investigation of the magnetoelastic oscillations of an electrically conductive plate in a magnetic field is reduced to the simultaneous solution of the equations of magnetic elasticity in a region occupied by the plate (internal problem), and the equations of electrodynamics for the entire remaining region of the space under consideration (external problem). An attempt is made to determine the magnetic field of a thin plate of finite conductivity, by means of asymptotic integration of the simultaneous equations of magnetoelasticity for the region occupied by the plate. Simultaneously considering the internal problem and the external problem, an investigation is made of the magnetoelastic oscillations of a thin plate of finite conductivity. Some hypotheses of magnetoelasticity are formulated for a plate of finite conductivity. In special cases, when the material of the plate is ideally conductive or when an infinitely extending thin plate has finite electric conductivity, the problem of magnetoelastic oscillations is solved relatively simple. In the general case, when the plate may have finite dimensions while its material is finitely conductive, the solution of this

1/2


USSR

AMBARTSUMYAN, S.A., et al, Prikladnaya Matematika i Mekhanika, No 2, March-April 1971, pp 216-228.

problem becomes very difficult, since in this case the internal problem cannot be divided and a precise determination of the magnetic field of the plate in a three-dimensional formulation is not possible. 6 bibliographic entries.

2/2

- 97 -

1/2 035 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SECONDARY PHOTOCHEMICAL PROCESSES OF TWO QUANTUM PHOTOIONIZATION OF  
AROMATIC AMINES AT 77DEGREESK -U-  
AUTHOR-(02)-KONDRATYEV, V.A., BAGDASARYAN, KH.S.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. VYS. ENERG. 1970, 4(1), 35-42  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--QUANTUM CHEMISTRY, PHOTOCHEMISTRY, AROMATIC AMINE, PHENYLENE,  
DIAMINE, PHOTOEFFECT, LOW TEMPERATURE EFFECT, IONIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/1116 STEP NO--UR/0456/70/004/001/0035/0742  
CIRC ACCESSION NO--AP0104514  
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104514

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SECONDARY PHOTOCHEM. REACTIONS IN SOLNS. OF N,N,N',N'-TETRA-METHYL-P-PHENYLENEDIAMINE (I) AND N,N-DIMETHYL-P-PHEYLENEDIAMINE (II) IN ETOH, PR SUB2 O, AND TERT-BUOH, AND PH SUB2 NH IN PR SUB2 O ARE STUDIED. THE IRRADN. OF I TAKES PLACE IN 2 STEPS, THE 1ST YIELDING A PRODUCT ABSORBING AT 540 NM, FORMED WITH A RAPIDLY STABILIZING CONC. OF THE CATION RADICAL, WHICH INCREASES WITH INCREASED LIGHT INTENSITY. THE 2ND STAGE PROCEEDS DIFFERENTLY IN THE PR SUB2 O AND THE ALCS. THE ALC. DISPROPORTIONATES TO GIVE AN ELECTRON RECOMBINING WITH THE CATION RADICAL. IN THE ETHER, A RADICAL MATRIX IS FORMED TO EFFECT PHOTORECOMBINATION. II AND PH SUB2 NH ARE SIMILARLY SENSITIZED TO GIVE AN IONIZATION OF THE AMINE FOLLOWED BY PHOTORECOMBINATION.

UNCLASSIFIED

Radiation Chemistry

USSR

UDC 541.15

BOROVKOVA, V. A., BAGDASAR'YAN, Kh. S., CHEPEL', D. V., SHEMAROV, F. V.,  
Institute of Physical Chemistry imeni L. Ya. Karpov

"Pulse Radiolysis of Polymethylmethacrylate Containing Aromatic Compounds"

Moscow, Khimiya Vysokikh Energiy, Vol 5, No 4, Jul-Aug 71, pp 337-339

Abstract: The formation of ions during pulse radiolysis of solutions of triphenylamine, biphenyl, naphthalene in polymethylmethacrylate (M) at 300°K was investigated. The spectrum of the pure polymer is at least partially due to captured electrons; in the presence of  $\text{CCl}_4$  its optical density decreases. Triphenylamine solutions exhibit the spectrum of its cation-free radical ( $\text{A}^+$ ). The spectra obtained in the presence of biphenyl and naphthalene are also due to the cation-free radicals of the admixtures. During radiolysis of polymethylmethacrylate for periods shorter than  $10^{-6}$  sec, cation-free radicals of the admixture are formed:  $\text{M}^+ + \text{A} \rightarrow \text{M} + \text{A}^+$ . This process competes effectively with the primary recombination of matrix charges  $\text{M}^+ + \text{e}^- \rightarrow \text{M}$  as a consequence of the electron-acceptor properties of the matrix. Reaction  $\text{A}^+ + \text{e}^- \rightarrow \text{A}^*$  is slow for the same reason. The radiation source was a linear accelerator providing 4 MeV electrons at 4 microsec. pulse duration. The results confirm previously proposed mechanisms of polymer radioprotection.

1/2 047

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--MOLECULAR MECHANISMS OF THE EFFECT OF UV IRRADIATION ON THE  
STRUCTURE OF POLYCHLOROPRENE -U-

AUTHOR-(03)-ASLANYAN, K.A., BAGDASARYAN, B.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 67-73.

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--UV RADIATION, POLYMER CROSSLINKING, CONJUGATE BOND SYSTEM,  
POLYCHLOROPRENE, OXIDATIVE DEGRADATION, MOLECULAR STRUCTURE, RADIATION  
EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3007/0969

STEP NO--UR/0431/70/005/001/0067/0073

CIRC ACCESSION NO--AP0136399



2/2 047

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136399

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UV IRRADN. OF POLYCHLOROPRENE (I)  
IN THE PRESENCE OF O BROUGHT ABOUT RANDOM OXIDATIVE DEGRADATION AND  
CROSSLINKING. ADDN. OF P 23(2,4,6, TRI,TERT,BUTYLPHENOL) IMPROVED THE  
RADIATIVE STABILITY OF I, PRESUMABLY DUE TO A CONJUGATED PI ELECTRON  
RING SYSTEM WHICH DISSIPATED THE ENERGY ABSORBED BY THE POLYMERS.

UNCLASSIFIED

1/2 040

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--CHANGES IN POLYCHLOROPRENE CRYSTALLIZATION UNDER THE INFLUENCE OF  
UV IRRADIATION STUDIED BY IR SPECTROSCOPY -U-

AUTHOR--(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 60-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCHLOROPRENE, CRYSTALLIZATION, UV RADIATION, RADIATION  
EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/0967

STEP NO--UR/0431/70/005/001/0060/0066

CIRC ACCESSION NO--AP0136397

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136397

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRYST. POLYCHLOROPRENE (I) CONTAINS FLAT POLYMER CHAINS IN WHICH THE MONOMER UNITS HAVE TRANS CONFIGURATIONS. SUCH CONFIGURATIONS GIVE IR BANDS AT 1450 CM PRIME NEGATIVE. THE IRRADN. OF I SAMPLES WITH UV LIGHT DECREASES THE IR BAND INTENSITY OF I AT 1450 CM PRIME NEGATIVE AND CAUSES OTHER SPECTRUM CHANGES. THE DECREASE OF I ORIENTATION DUE TO UV IRRADN. IS CAUSED BY CROSSLINKING. STABILIZERS, SUCH AS P 23 OR 2246, SCREEN OUT THE RADIATION BY ABSORBING THE UV LIGHT ENERGY AND DISTRIBUTE IT AMONG THE AROMATIC RINGS.

UNCLASSIFIED

1/2 044 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--EFFECT OF ULTRAVIOLET IRRADIATION ON THE STRUCTURE OF CHLOROPRENE  
RUBBERS -U-  
AUTHOR-(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.  
COUNTRY OF INFO--USSR **B**  
SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 434-7  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS, PHYSICS  
  
TOPIC TAGS--POLYCHLOROPRENE, UV RADIATION, EMULSION POLYMERIZATION,  
POLYMER CROSSLINKING, RUBBER, MATERIAL DEGRADATION, RADIATION EFFECT  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0247 STEP NO--UR/0459/70/012/002/0434/0437  
  
CIRC ACCESSION NO--AP0106903  
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106903

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. POLYCHLOROPRENE (I) RUBBERS PREPD. BY EMULSION POLYMN. IN THE PRESENCE OF K SUB2 S SUB2 J SUB8, TERT DODECYL MERCAPTAN, AND NA ALKYL SULFONATE, WERE AGED BY UV IRRADN. THE IRRADN. CAUSES CROSSLINKING, WHICH PROCEEDS THROUGHOUT THE I VOL. AND IS MORE EXTENSIVE FOR HIGHER MOL. WT. I, AND DEGRADATION, WHICH IS ESSENTIALLY A SURFACE PHENOMENON. THE CROSSLINKING DECREASES THE CRYSTALLINITY; BOTH PROCESSES CHANGE THE POLYDISPERSITY, SOLY., AND OPTICAL PROPERTIES OF I.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--STRUCTURE AND MOLECULAR THERMAL PROPERTIES OF WATER -U-

AUTHOR--BAGDASARYAN, S.S.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 66-71

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUID STRUCTURE, WATER, MOLECULAR STRUCTURE, SPECIFIC HEAT,  
HEAT OF VAPORIZATION, SURFACE TENSION, THERMAL CONDUCTIVITY,  
CALCULATION, HIGH TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0934

STEP NO--UR/0294/70/008/001/0066/0071

CIRC ACCESSION NO--AP0107463

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70  
 CIRC ACCESSION NO--AP0107463  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THE MODEL OF LIQ. STRUCTURE, FORMULAS FOR THE TEMP. DEPENDENCE OF COORDINATION NO., DEGREE OF ASSOCN., SP. HEAT, C SUBP, (KCAL-KG DEGREE), SP. HEAT OF VAPORIZATION, R (KCAL-KG), SURFACE TENSION, SIGMA (ERGS-CM PRIME2), AND THERMAL DIFFUSIVITY, LAMBDA (KCAL-M HR DEGREE) OF WATER WERE DERIVED FOR TEMP. INTERVAL 273DEGREES-573DEGREESK. THE C SUBP WAS CALCD. FROM C SUBP EQUALS AE PRIMEALPHA PLUS B(1 MINUS E PRIME NEGATIVEALPHA), WHERE A EQUALS 0.987, B EQUALS 0.909 OR 0.267 FOR 273 IS SMALLER THAN OR EQUAL TO T IS SMALLER THAN OR EQUAL TO 513DEGREESK AND 523DEGREES IS SMALLER THAN OR EQUAL TO T IS SMALLER THAN OR EQUAL TO 623DEGREESK, RESP., ALPHA EQUALS (T MINUS T SUBE) OVER (2T SUBK MINUS T), WHERE T SUBE AND T SUBK ARE THE MELTING TEMP. AND CRIT. TEMP., RESP.; R WAS CALCD. FROM R EQUALS 1033.4 (1 MINUS T-T SUBK) E PRIMEALPHA PLUS 502.9 (1 MINUS E PRIME NEGATIVEALPHA), SIGMA FROM SIGMA EQUALS 130.7 (1 MINUS T-T SUBK) E PRIMEALPHA PLUS 28.44 (1 MINUS E PRIME NEGATIVEALPHA), AND LAMBOA EQUALS 1.516 MINUS 1.035E PRIME NEGATIVEALPHA FOR 273 IS SMALLER THAN OR EQUAL TO T SMALLER THAN OR EQUAL TO 393DEGREESK OR LAMBOA EQUALS 0.674E PRIME NEGATIVEALPHA FOR 393DEGREES IS SMALLER THAN OR EQUAL TO T SMALLER THAN OR EQUAL TO 613DEGREESK. DIFFERENCES BETWEEN CALCD. AND EXPTL. VALUES AT HIGH TEMPS. AMY BE EXPLAINED BY FORMING MICROMOL. GROUPS FROM INDIVIDUAL MOLS. FACILITY: AZERB. PEDAGOG. INST. IM. LENINA, BAKU, USSR.

UNCLASSIFIED

USSR

UDC 621.374.1.1

SHERMAN, YA.D., BAGDASARYAN, S.T.

"Analysis Of The Correlation Functions Of Space-Time Broad-Band Signals Accepted By Linear Antennas"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1971, pp. 1184-1188

Abstract: Two-dimensional correlation functions (distances-angle) of space-time broad-band signals are analyzed and compared for three variations of the construction of discrete and continuous linear antennas, with different characteristics. The three variations are: 1) The antenna is phased in the arbitrary direction  $\theta$  for all harmonic components in the frequency band of the signal  $\omega$  (broad-band). Specifically, phasing is performed by delay lines (antenna with delay lines). 2) The antenna is phased in an arbitrary direction only at the center frequency  $f_0$  of the signal spectrum with the aid of a system of delay lines (antenna with phase tuning). 3) The antenna is phased for all components in the frequency band of the signal, but only in one direction normal to its surface (electrically non-tunable broad-band antenna). The dependence is shown of the directional diagram on the error signal with respect to the time of arrival, important with the width of its band. 5 fig. 3 ref. Received by editor, October 1971.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SIMPLIFIED METHOD FOR CALCULATING THE EQUILIBRIUM COMPOSITION OF  
NITROGEN OXIDES OVER NITRIC ACID SOLUTIONS -U-  
AUTHOR-(03)-ATROSHCHENKO, V.I., BAGDASARYAN, V.S., PERLOV, YE.I.  
COUNTRY OF INFO--USSR  
SOURCE--ARM. KHIM. ZH. 1970, 23(2), 107-13  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NITROGEN OXIDE, NITRIC ACID, CHEMICAL EQUILIBRIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1319 STEP NO--UR/0426/70/023/002/0107/0113  
CIRC ACCESSION NO--AP0116779  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0116779

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EQUATIONS WERE STUDIED, ALONG WITH METHODS FOR THEIR SOLUTION, FOR CALCG. THE EQUIL. COMPH. OF THE N OXIDES OVER HNO SUB3 SOLNS. AS A FUNCTION OF THE PARTIAL PRESSURE OF THE OXIDES AND THEIR DEGREE OF OXIDN. IN THE STARTING GAS MIXT. CALCNS. WERE MADE WITH AND WITHOUT TAKING INTO ACCOUNT THE CHANGE IN THE GAS VOL. DUE TO THE REACTION OF THE OXIDES WITH THE ACID SOLNS. NOMOGRAMS ARE GIVEN TO SIMPLIFY THE CALCNS. FACILITY: GOS. NAUCH.-ISSLED. INST. AVTOMAT. PROIZVOD. PROTSSESS. KHIM. PROM. TSVET. MET., KIROVAKAN, USSR.

UNCLASSIFIED

USSR

UDC 621.382.5

BAGDASAR'YANTS, E.I.

"Unijunction Transistor And Its Use"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Issue 24, Moscow, "Sov.radio," 1970, pp 183-203 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B243)

Translation: A unijunction transistor is considered as a switching [klyuchevoy] element. The physical process is described which leads to the appearance of part of the negative differential resistance in the input voltampere characteristic. 7 ill. 30 ref. Author's abstract.

1/1

- 75 -

USSR

UDC 613.732:547.538.141]:614.895.5

BAGDINOV, Yu. M., Institute of Industrial Hygiene and Occupational Diseases,  
Academy of Medical Sciences USSR

"Experimental Hygienic Study of the Protective Properties of Fabrics Used  
in Work Clothes Worn in an Atmosphere Containing Styrene"

Moscow, Gigiyena i Sanitariya, No 10, 1971, pp 25-29

Abstract: Seven fabrics (cotton, cotton with polycaprolactam resin, cotton impregnated with chromolan, cotton with flax impregnated with water-resistant substance, pure flax, silk, wool with polyacrylonitrile fiber) were tested for styrene resistance in a special apparatus. The device permitted simultaneous determination of styrene in the air above the protective clothing, in the space under the clothing, and the behavior of styrene in the fabric with increasing length of exposure). The air in the experimental chamber contained styrene in concentrations 3.5 to 5.0 times the maximum permissible concentration (MPC for styrene: 5.0 mg/m<sup>3</sup>). Only small and constant quantities of the substance were found in the different fabrics regardless of the length of exposure, suggesting that vaporous styrene was not absorbed by the fabrics but diffused through the pores. Most of the fabrics tested reduced the styrene level to the MPC or lower, but provided little protection when the

1/2

USSR

BAGDINOV, Yu. M., Gigiyena i Sanitariya, No 10, 1971, pp 25-29

styrene concentration was 10.0 mg/m<sup>3</sup> or more. The most effective was wool with polyacrylonitrile fiber.

2/2

- 54 -

General

USSR

BAGDONAS, A., Candidate of Biological Sciences

"Two-Headed Janus in Living Nature"

Moscow, Nauka i Zhizn', No 1, 1972, pp 37-41

Abstract: Biochronometry, the science of time measurement in living systems, is mainly a product of the last two decades. While it has no generally accepted theory at this time, as is typical of young sciences, still a great deal of interesting material has been accumulated. It is recognized initially that the natural rhythms of nonliving nature must be reflected in living nature, in biorhythms of living organisms. Three types of biorhythms are recognized in one classification: exogenic (from the external environment); endogenic (hereditary); and "imprinted," a kind of "inherited potential" which appears to be neither of the first two, and is now a matter for further research. A second classification of biorhythms divides all into ecological (related to external environment) and functional (related to internal functions of the organism). The fact that almost all physiological processes have precise rhythms indicates that this is a basic property of living nature. This raises an essential question -- what mechanism ensures this rhythm, and how does the organism "measure time?" In the higher animals, it has been

1/3

USSR

BAGDONAS, A., Nauka i Zhizn', No 1, 1972, pp 37-41

fairly well established that the endocrine glands and hypothalamus and the nervous system maintain this regularity and "measure time." A "general clock" is sought in the nervous system, and various hypotheses exist as to its mechanism. The author, following the ideas of Ye. Sokolov of Moscow University, feels there may be "extrapolation neurons" and traces of past stimuli which are registered in the nervous system and can develop into "conditioned time reflexes" in the manner of Pavlov's classical experiment with the dog who began to salivate at the correct half-hour interval even without sensory stimuli. Human psychological perception of time can be very precise, and there is a so-called "neutral interval" about 3.5-7 seconds, which a person can determine with absolute accuracy. On the other hand, perceptions of time in ordinary life are usually colored and distorted by a broad range of stimuli and conditions. In speculating on primal notions of time, it seems clear that the initial ideas of time were closely related to the development of speech and that they dealt with the natural rhythms of the external world, especially the Sun and the Moon. In this sense it can be said that primitive man's notion of time was more accurate, in its clear recognition of rhythms, than is the abstracted notion ordinarily held today. In conclusion, it is noted that Vladimir Il'ich

2/3

- 40 -

USSR

BAGDONAS, A., Nauka i Zhizn', No 1, 1972, pp 37-41

Lenin defined time as a form of the existence of matter. This means that space and time do not exist of themselves outside of their relationship with matter. The properties of space and time exist as properties of matter itself.

3/3



USSR

BAGDOYEV, A. G.; DANOYAN, Z. N. (Yerevan)

"Studies of the Motion of the Mean in the Neighborhood of the Point of Contact of Shock Waves in Linear and Nonlinear Formulations"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki; November-December, 1972; pp 1512-29

ABSTRACT: The authors study the problem of determining the solution of an arbitrary linear system of equations of a hyperbolic type with three  $(t, x, y)$  and four  $(t, x, y, z)$  independent variables in the neighborhood of the point (or line) of contact of a wave of a given type with a point or diffraction wave. The solution is found by means of hypergeometric functions. Later on, simplified nonlinear equations describing the motion of the mean in the given wave region are derived and their solution is obtained for the planar problem. As an example, nonlinear equations in the vicinity of a wave in magnetogas dynamics are derived.

The article includes 53 equations and three figures. There are 30 references.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ALTERATION OF NATURAL TITANOMAGNETITE AT HIGH PRESSURES AND  
TEMPERATURES -U-  
AUTHOR-(04)-BAGINA, O.L., KARPOVA, O.V., LIVSHITS, L.D., PETROVA, G.N.  
COUNTRY OF INFO--USSR **B**  
SOURCE--IZV. AKAD. NAUK SSSR, FIZ. ZEMLI 1970, (2), 103-7  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--IRON ORE, CURIE POINT, THERMAL EFFECT, SOLID SOLUTION,  
TITANIUM COMPOUND, ARSENIC MINERAL, COPPER COMPOUND, MAGNETIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1244

STEP NO--UR/0387/70/000/002/0103/0107

CIRC ACCESSION NO--AP0136655

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136655

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NATURAL OLIVINITE ASSOCD. WITH  
TITANOMAGNETITE WAS HEATED AT VARIOUS TEMPS. UP TO 1000DEGREES IN CLOSED  
AMPULS IN A NEUTRAL OR A SLIGHTLY REDUCING ENVIRONMENT. THE CURIE  
POINTS ARE GIVEN TOGETHER WITH THE FRACTION OF SOLID SOLNS. IN THE  
RESULTING PRODUCTS. THE SPECIFIC MAGNETIZATION DEPENDED ON THE AMT. OF  
MAGNETITE PRESENT IN THE SOLID SOLNS. FACILITY: INST. FIZ.  
ZEMLI, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--EFFECT OF MAGNETIC IMPURITIES ON ELECTRON HOLE SINGLET COUPLING -U-  
AUTHOR--(02)-TOVSTYUK, K.O., BAGINSKIY, V.M. **B**  
COUNTRY OF INFO--USSR  
SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 5, P. 780-8 (MAY 1970)  
DATE PUBLISHED----MAY70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTRON HOLE, TRANSITION TEMPERATURE, IMPURITY LEVEL,  
ELECTRON SPIN, FERROMAGNETIC MATERIAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/1787 STEP NO--UR/0185/79/015/005/0780/0788  
CIRC ACCESSION NO--AP0133702